

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) ~~A separator for separating entrained particles from a fluid flow,~~
~~the separator~~ vacuum cleaner comprising:
 - (a) a cleaner head adapted for movement over a surface and having a fluid nozzle positionable adjacent the surface;
 - (b) a handle for moving the cleaner head over the surface;
 - (c) (a) a casing housing a cyclone chamber having a cyclone chamber for containing a cyclonic flow in a cyclonic flow region in communication with the fluid nozzle, the cyclonic flow region having a radial width, an outer peripheral portion, a medial portion disposed interior of the peripheral portion and an inner portion disposed interior of the medial portion;
 - (d) means for introducing a fluid flow to the cyclone flow region ~~for cyclonic rotation therein;~~
 - (e) means for removing the fluid flow from the cyclone chamber;
 - (f) particle receiving means disposed beneath the cyclone flow region for receiving particles separated from the fluid flow;
 - (g) separation means for essentially isolating the particle receiving means from the cyclone chamber except for transporting means associated with the separation means for connecting the particle receiving means in flow communication with the cyclonic flow region such that, in operation, particles pass through the transporting means to the particle receiving means.

2. (currently amended)The ~~separator~~ vacuum cleaner of claim 1 wherein the particle receiving means comprises a sealed chamber except for the transporting means and the separator further comprises emptying means for emptying the particle receiving means.
3. (currently amended)The ~~separator~~ vacuum cleaner of claim 1 further comprising means for connecting the particle receiving means in flow communication with a conduit for transporting separated particles downstream from the particle receiving means.
4. (currently amended)The ~~separator~~ vacuum cleaner of claim 1 further comprising aerodynamic means associated with the transporting means for directing particles from the cyclonic flow region into the particle receiving means.
5. (currently amended)The ~~separator~~ vacuum cleaner of claim 1 wherein the particle separating means extends under all of the cyclonic flow region to define bottom surface of the cyclonic flow region.
6. (currently amended)The ~~separator~~ vacuum cleaner of claim 1 wherein the cyclonic flow region has a radial width, an outer peripheral portion, a medial portion disposed interior of the peripheral portion and an inner portion disposed interior of the medial portion and the transporting means are positioned beneath only one or both of the peripheral and inner portions of the cyclonic flow region.
7. (currently amended)The ~~separator~~ vacuum cleaner of claim 1 wherein the transporting means are distributed regularly around the separating means.

8. (currently amended)The ~~separator~~ vacuum cleaner of claim 1 wherein the fluid contacts only a portion of the separating means and the transporting means are positioned only in said portion.
9. (currently amended)The ~~separator~~ vacuum cleaner of claim 1 wherein the transporting means comprise openings in the separation means.
10. (cancelled)
11. (currently amended)The ~~separator~~ vacuum cleaner of claim 10 wherein the casing is pivotally mounted to the cleaner head and the vacuum cleaner is an upright vacuum cleaner.
12. (currently amended)The ~~separator~~ vacuum cleaner of claim 1 wherein the transporting separation means comprises ~~has apertures which are sized to inhibit elongate particles from passing there through, whereby elongate particles collect on top of the separation means.~~
13. (currently amended)The ~~separator~~ vacuum cleaner of claim 12 wherein the apertures comprise slits having longitudinally extending upstream and downstream edges relative to the fluid flow and transversely extending sides and the edges are longer than the sides.
14. (currently amended)The ~~separator~~ vacuum cleaner of claim 13 wherein the length of ~~the~~ edges are substantially aligned with the radial width of the cyclone chamber.
15. (currently amended)The ~~separator~~ vacuum cleaner of claim 13 wherein the length of ~~the~~ edges define a longitudinally extending axis which are at an angle of up to 45° to the radius of the cyclonic flow region.

16. (currently amended) The ~~separator~~ vacuum cleaner of claim 12 wherein the apertures have an radial outer end and a radial inner end and the radial outer end is positioned adjacent the outer wall of the cyclone chamber.
17. (currently amended) The separator of claim 12 wherein the apertures have an upstream edge and downstream edge, relative to the fluid flow and the thickness of the particle separation means ~~separating member~~ is reduced adjacent the upstream edge of the apertures.
18. (currently amended) The ~~separator~~ vacuum cleaner of claim 17 wherein the separation means has an upper surface and a lower surface and the separation means has a wall extending between the upper and lower surfaces defining the edges and the upstream edge ~~upper surface~~ is angled towards the particle receiving means ~~chamber~~ adjacent the upstream edge and the lower surface is angled away from the aperture adjacent the downstream edge.
19. (currently amended) The ~~separator~~ vacuum cleaner of claim 1 wherein the separation means is disposed substantially perpendicularly to a longitudinal axis of the cyclonic flow region.
20. (currently amended) A method for cleaning a surface ~~separating entrained particles from a fluid flow, the method comprising the steps of:~~
(a) passing a cleaning head over a surface to clean the surface;
(b) (a) introducing a fluid traveling from the cleaning head to flow cyclonically in a chamber having a cyclonic flow region, ~~the cyclonic flow region having a radial width, an outer peripheral portion, a medial portion disposed interior of the peripheral portion and an inner portion disposed interior of the medial portion;~~

(c) ~~(b)~~ removing particles from the fluid flow in the cyclone chamber via passages provided beneath the cyclonic flow region into an area beneath the passages ~~without any substantial re-entrainment of separated material from the area to the cyclonic flow region and essentially terminating cyclonic flow in the area beneath the passages~~; and,

(d) ~~(e)~~ removing the fluid flow from the chamber.

21. (original) The method of claim 20 further comprising the steps of storing the particles removed from the fluid flow and inverting the chamber to remove the separated particles.

22. (original) The method of claim 20 further comprising the step of transporting separated particles downstream from the chamber.

23. (cancelled)

24. (original) The method of claim 20 further comprising directing particles to pass into the passages.

25. (currently amended) ~~A separator for separating entrained particles from a fluid flow, the separator~~ vacuum cleaner comprising:

(a) a cleaner head adapted for movement over a surface and having a fluid nozzle positionable adjacent the surface;

(b) a handle for moving the cleaner head over the surface;

(c) a casing for housing a cyclone chamber;

(d) ~~(a)~~ a the cyclone chamber having an outer wall and a cyclonic flow region;

(e) ~~(b)~~ a fluid inlet for introducing a cyclonic fluid flow to the cyclonic flow region, the fluid inlet downstream from the fluid nozzle;

(f) ~~(c)~~ a fluid outlet for removing the fluid flow from the cyclone chamber;

- (g) ~~(d)~~—a particle separation member positioned in the cyclone chamber beneath at least a portion of the cyclonic flow region, the particle separation member having an upper surface and plurality of apertures; and,
- (h) ~~(e)~~—a particle receiving chamber disposed beneath the particle separation member for receiving particles passing into the particle receiving chamber through the apertures
- ~~wherein the separator is constructed to reduce turbulent fluid flow in the vicinity of the apertures.~~
26. (currently amended) The ~~separator~~ vacuum cleaner of claim 25 further comprising a fluid pump for causing the fluid to flow through the separator wherein the fluid flow through the cyclone chamber is pulsed.
27. (currently amended) The ~~separator~~ vacuum cleaner of claim 25 further comprising a moveable closure member on one of the fluid inlet and the fluid outlet for causing a pulsed fluid flow through the cyclone chamber.
28. (currently amended) The ~~separator~~ vacuum cleaner of claim 25 wherein the particle separation member has from 5 to 35 apertures.
29. (cancelled)
30. (currently amended) The ~~separator~~ vacuum cleaner of claim 25 wherein the cyclone chamber has a diameter and each aperture has a longitudinally extending upstream edge and a longitudinally extending downstream edges, relative to the fluid flow, and transverse sides extending between the edges, the edges have a length which is less than 10% of the diameter of the cyclone chamber and the sides have a length which is 25 - 35% of the length of the edges.

- 31.(currently amended) The ~~separator~~ vacuum cleaner of claim 30 wherein the edges are substantially radially aligned with the cyclone chamber.
- 32.(currently amended) The ~~separator~~ vacuum cleaner of claim 25 wherein each aperture has an upstream edge and a downstream edge, relative to the fluid flow, and the upstream edge is angled towards the particle receiving chamber, the included angle between the upstream edge and the upper surface of the particle separation member is from 15 to 90°.
- 33.(currently amended) The ~~separator~~ vacuum cleaner of claim 25 wherein each aperture has an upstream edge and a downstream edge, relative to the fluid flow, and the downstream edge is angled towards the particle receiving chamber, the included angle between the downstream edge and the upper surface of the particle separation member is from 15 to 90°.
- 34.(currently amended) The ~~separator~~ vacuum cleaner of claim 25 wherein the fluid flow changes direction and travels to the fluid outlet at a position as it travels over the particle separation member and the separator further comprises ~~comprising~~ a baffle positioned beneath the particle separation member at a position 10 to 20° downstream of the position at which the fluid flow changes direction.
- 35.(currently amended) The ~~separator~~ vacuum cleaner of claim 34 wherein the particle receiving chamber has a bottom to comprise a sealed chamber except for the apertures and the baffle extends between the particle separation member and the bottom of the particle receiving chamber.
- 36.(currently amended) The ~~separator~~ vacuum cleaner of claim 25 wherein the particle receiving chamber is in communication with a conduit for transporting separated particles downstream from the particle receiving chamber.

37. (cancelled)

38. (original) The ~~separator~~ vacuum cleaner of claim 25 wherein the particle separation member extends under all of the cyclonic flow region to define bottom surface of the cyclonic flow region.

39. (cancelled)

40. (cancelled)

41. (cancelled)

42. (cancelled)

43. (cancelled)

44. (cancelled)

45. (cancelled)

46. (cancelled)

47. (currently amended) A vacuum cleaner comprising:

- (a) a cyclone chamber having an outer wall and a cyclonic flow region;
- (b) an air inlet for introducing a cyclonic air flow to the cyclonic flow region;
- (c) a cleaner head adapted for movement over a surface and having an air nozzle positionable adjacent the surface, the nozzle in air flow communication via a passageway with the air inlet;

- (d) a air outlet for removing the air flow from the cyclone chamber;
- (e) a particle separation member positioned in the cyclone chamber beneath at least a portion of the cyclonic flow region, the particle separation member having an upper surface and plurality of apertures, wherein each aperture has an upstream edge and a downstream edge, relative to the air flow;
- (f) a particle receiving chamber disposed beneath the particle separation member for receiving particles passing into the particle receiving chamber through the apertures; and,
- (g) a motor for causing the air to flow through the vacuum cleaner wherein the downstream edge is angled towards the particle receiving chamber, the included angle between the downstream edge and the upper surface of the particle separation member is from 15 to 90°;~~wherein the particle separation member is constructed and adapted to increase the particle separation efficiency of the cyclone chamber.~~

48. (original) The vacuum cleaner of claim 47 wherein the particle separation member has from 5 to 35 apertures.

49. (cancelled)

50. (Currently amended) The vacuum cleaner of claim 47 wherein the cyclone chamber has a diameter and each aperture has ~~a longitudinally extending upstream edge and a longitudinally extending downstream edges, relative to the air flow,~~ and transverse sides extending between the edges, the edges have a length which is less than 10% of the diameter of the cyclone chamber and the sides have a length which is 25 - 35% of the length of the edges.

51. (original) The vacuum cleaner of claim 50 wherein the edges are substantially radially aligned with the cyclone chamber.

52. (Cancelled)

53. (cancelled)

54. (Currently amended) The vacuum cleaner of claim 47 wherein the air flow changes direction and travels to the air outlet at a position as it travels over the particle separation member and the vacuum cleaner further comprises ~~comprising~~ a baffle positioned beneath the particle separation member at a position 10 to 20° downstream of the position at which the air flow changes direction.

55. (original) The vacuum cleaner of claim 54 wherein the particle receiving chamber has a bottom to comprise a sealed chamber except for the apertures and the baffle extends between the particle separation member and the bottom of the particle receiving chamber.

56. (new) The method of claim 20 further comprising essentially terminating cyclonic flow in the area beneath the passages.

57. (new) A vacuum cleaner comprising:

- (a) a cleaner head adapted for movement over a surface and having a dirty air inlet;
- (b) a handle for moving the cleaner head over the surface;
- (c) a cyclone chamber having an outer wall including a bottom, a cyclonic flow region, a fluid inlet downstream from the dirty air inlet and a fluid outlet;
- (d) a plate positioned in the cyclone chamber above the bottom and defining a dirt collection chamber positioned between the plate and the bottom of the cyclone chamber that is in air flow communication with the cyclonic flow region; and,

- (e) at least one baffle in the dirt collection chamber.
58. (new) The vacuum cleaner of claim 57 wherein the plate includes a plurality of apertures.
59. (new) The vacuum cleaner of claim 57 wherein the plate defines a non-continuous surface.
60. (new) The vacuum cleaner of claim 57 wherein the plate is disc-shaped.
61. (new) The vacuum cleaner of claim 57 wherein the dirt collection chamber comprises a plurality of baffles.
62. (new) The vacuum cleaner of claim 57 wherein the dirt collection chamber has one baffle.
63. (new) The vacuum cleaner of claim 62 wherein the air flow changes direction and travels to the air outlet at a position as it travels over the plate and the baffle is positioned beneath the plate at a position 10 to 20° downstream of the position at which the air flow changes direction.
64. (new) The vacuum cleaner of claim 62 wherein the at least one baffle extends between the particle separation member and the bottom of the dirt collection chamber.
65. (new) The vacuum cleaner of claim 57 wherein the cyclone chamber further comprises a door to assist in emptying the dirt collection chamber.
66. (new) The vacuum cleaner of claim 57 wherein the plate includes a hinge.

67.(new) A vacuum cleaner comprising:

- (a) a cleaner head adapted for movement over a surface and having a dirty air inlet;
- (b) a handle for moving the cleaner head over the surface;
- (c) a cyclone separator having an outer wall, a fluid inlet downstream from the dirty air inlet and a fluid outlet;
- (d) a plate positioned to substantially divide the cyclone separator into a cyclone chamber and a dirt collection chamber; and,
- (e) at least one baffle in the dirt collection chamber.

68.(new) The vacuum cleaner of claim 67 wherein the cyclone separator further comprises a door.

69.(new) The vacuum cleaner of claim 68 wherein the cyclone separator further comprises a cyclone bin and the cyclone bin further comprises a door.

70.(new) The vacuum cleaner of claim 67 wherein the cyclone bin is removable from the vacuum cleaner.

71.(new) The vacuum cleaner of claim 67 wherein the cyclone separator is removable from the vacuum cleaner.

72.(new) The vacuum cleaner of claim 67 wherein the plate includes a plurality of apertures.

73.(new) The vacuum cleaner of claim 67 wherein the plate defines a non-continuous surface.

- 74.(new) The vacuum cleaner of claim 67 wherein the plate is disc-shaped.
75. (new) The vacuum cleaner of claim 67 wherein the dirt collection chamber comprises a plurality of baffles.
- 76.(new) The vacuum cleaner of claim 67 wherein the dirt collection chamber has one baffle.
- 77.(new) The vacuum cleaner of claim 67 wherein the air flow changes direction and travels to the air outlet at a position as it travels over the plate and the baffle is positioned beneath the plate at a position 10 to 20° downstream of the position at which the air flow changes direction.
- 78.(new) The vacuum cleaner of claim 67 wherein the at least one baffle extends between the particle separation member and the bottom of the dirt collection chamber.
- 79.(new) The vacuum cleaner of claim 67 wherein the plate includes a hinge.
- 80.(new)A method for cleaning a surface using a vacuum cleaner comprising:
- (a) operating a vacuum cleaner comprising:
 - (i) passing a cleaning head having a dirty fluid inlet over a surface to clean the surface;
 - (ii) conveying a fluid from the dirty fluid inlet to a cyclone separator having a bottom and a plate positioned above the bottom;
 - (iii) collecting particles from the fluid in a dirt collection chamber positioned below the plate; and,
 - (iv) removing fluid from the cyclone chamber;
 - (b) discontinuing operation of the vacuum cleaner; and,

- (c) removing at least a portion of the cyclone separator from the vacuum cleaner which contains the plate and the dirt collection chamber.
- 81.(new) The method of claim 80 further comprising collecting particles from the fluid flow on top of the plate and emptying the particles in the dirt collection chamber and on top of the plate at the same time.
- 82.(new) The method of claim 80 further comprising inverting the portion of the cyclone separator after it is removed from the vacuum cleaner whereby separated particles collected above the plate and in the dirt collection chamber are emptied from the portion.
- 83.(new) The method of claim 80 wherein the cyclone separator includes a door and the method further comprises opening the door.
- 84.(new) The method of claim 83 further comprising opening the door after the portion of the cyclone separator is removed from the vacuum cleaner.
- 85.(new)A method for cleaning a surface using a vacuum cleaner comprising:
- (a) operating a vacuum cleaner comprising:
 - (i) passing a cleaning head having a dirty fluid inlet over a surface to clean the surface;
 - (ii) conveying a fluid from the dirty fluid inlet to a cyclone separator having a plate positioned to substantially divide the cyclone separator into a cyclone chamber and a dirt collection chamber;
 - (iii) collecting particles from the fluid in a dirt collection chamber; and,
 - (iv) removing fluid from the cyclone chamber;
 - (b) discontinuing operation of the vacuum cleaner; and,

(c) removing at least a portion of the cyclone separator from the vacuum cleaner which contains the plate and the dirt collection chamber.

86.(new) The method of claim 85 further comprising collecting particles from the fluid flow on top of the plate and emptying the particles in the dirt collection chamber and on top of the plate at the same time.

87.(new) The method of claim 86 further comprising inverting the portion of the cyclone separator after it is removed from the vacuum cleaner whereby separated particles collected above the plate and in the dirt collection chamber are emptied from the portion.

88.(new) The method of claim 85 wherein the cyclone separator includes a door and the method further comprises opening the door.

89.(new) The method of claim 88 further comprising opening the door after the portion of the cyclone separator is removed from the vacuum cleaner.